



BENJAMIN LOZANO 2017-09-03

ECONOMY OF THE WAR MACHINE (PART II OF IV)

ECONOFICTION DELEUZE, DELEUZE/GUATTARI, FEDERAL RESERVE, FINANCE, MULTIPLICITY, RHIZOME, RUPTURE

Part II. Three Models of Economy in Chapter 1

There are, according to D&G, as outlined in Chapter 1, three conceptually-distinct but ontologically-interwoven models for the composition of the assemblage of an object. For our purposes, we have said we will take up the object qua assemblage *that is* the set of properties and their relations we call “the economy”. To be clear, it is not that D&G think that any given economic system is fixed, finally-committed to, or structurally-overdetermined by any one of these models. Rather, economies constantly combine and recombine such modalities in a fluid, fungible process of becoming, a becoming of flows, even if it is the case that in actuality one such model usually tends to overcode the other two in their functional capacities.

The first type of economy is the root-economy, or often more appropriately-labeled by D&G as the *arborescent model*.

1. The second type is the radicle or *fascicular model* of economy.
2. The third type is the *rhizome model*. As the essays of *TP* proceed, D&G also begin using the term ‘economy of the war machine’[1], or ‘dromocracy’: the terms are synonymous; we will demonstrate this is best actualized as a *H₂Ofall economy*.

Let us consider each model.

Arborescent Model

‘The first type of [economy] is the root [economy]...The tree and root inspire a sad image of thought that is forever imitating the multiple on the basis of a centered or segmented higher unity. If we consider the set, the branches-roots, the trunk plays the role of *opposed segment* for one of the subsets running from bottom to top: this kind of segment is a “link dipole”, in contrast to the “unit dipoles” formed by spoke radiating from a single center.’[2]

D&G enjoin us to think of the manner by which trees distribute their flows. This occurs by way of linear, unidirectional processes. A centralized trunk splits-in-two, and such binaries perform a dualist distribution of flows. Trees, of course, are not always strictly veridical in their distributional organization, but for D&G that is quite beside the point, insofar as they’re concerned with the

images of flows articulated by each model. Rather, they're simply using a tree trope to define any veridically-organized economic system as an assemblage that proceeds in the manner of the arborescent model.

From 'centers of power'[3] the spokes of an arborescent economy radiate outward as a unified, synchronized set of homogenized processes. Their affects link various 'unit dipoles' –institutions, actors, assets, and so on– which incrementally extend, or expand, in a linear direction, always following pre-circumscribed, fixed, Euclidean, established routes. As D&G put it: 'Arborescent systems are hierarchical systems with centers of significance and subjectification, central automata like organized memories. In the corresponding models, an element only receives information from a higher unit, and only receives a subjective affection along preestablished paths.'[4]

In an arborescent model the object is whole, the object is total and totalizing. For this reason, we quickly recognize that the arborescent model of flows characterizes so-called "planned economies", whereby determinations over the distribution of capital, cash, and monetary flows are hierarchically-arranged 'on the basis of a centered or segmented unity'.[5] The leather-cap communist, or tobacco-pipe socialist manner of the distribution of flows, whose topic is the retroactive critique of Spufford's *Red Plenty*, the disdain of Hayek's most spirited work, and Lenin's advocations in *The State and Revolution*, for example, most-closely embodies the arborescent model. But let us not overlook the presence of elements of such veridical determinations by, among other institutions, central banks in today's bubble-gum capitalist economies. This may be less obvious to our reader. For this reason some discussion of it is warranted.

'Because wages and prices do not adjust quickly enough to keep the economy at full employment all the time, sometimes monetary and fiscal policies are needed...'

– former Chairman of the Federal Reserve, Ben Bernanke[6]

'Imagine the trading floor in a movie about Wall Street, except that the people at the desks look like graduate students, dress business casual, and work in library like silence. There are few seminar-size rooms off the main floor. In one, on the spring morning I visited, there were five very serious looking people. They were buying, in daily quantities small enough for financial markets to digest, long-term U.S. government bonds amounting to thirty billion dollars every month. In the next room, were seven people buying mortgage-backed securities (twenty-five billion dollars every month). Can a spectacle so lacking in the indicia of importance –no pageantry, no emotions, not even speaking –really be the beating heart of capitalism?'[7]

– reporter, Nicholas Lehman, describing his experience 'watching' the practice of quantitative easing by the Federal Reserve

The Federal Reserve combines 'open market operations' (somewhat ironically-labeled) with a sovereign decision on short term interests rates, to effect a root- or tree-like mode of distribution of flows. Such central bank action effectuates the amount and velocity of money in the economy, therefore imbues an amount and sets a price for liquidity in financial markets, and subsequently determinatively influences a range of prices of cash commodities. When the Federal Open Market Committee (FOMC) convenes every five or so weeks, it's meetings are premised on an understanding that it's task is to act as a 'center of significance and subjectification': it is both legally-authorized and legally-charged with the task of acting as a 'link-dipole' between money and capital markets, on the one hand, and the rest of the 'unit-dipoles' of the economy (e.g. commodities markets, equities markets, consumer goods markets), on the other. This is to say that the central bank plans and implements a target-interest rate, it outright controls the money supply (through the sale and purchase of Treasuries), and therein continually issues 'messages' to the market by way of the hierarchical distribution of information (significance) and veridical determination of the term-yield structure (subjectification).

To observe that the Federal Reserve's dual mandate is to act as a 'central automata like organized memories' is not hyperbole, but merely a fancy way of observing that it enacts its role as an institutionalized memory for the spokes of the economy by controlling the benchmark rate for the price of money; and so each 'element' of information that then congeals in the price of an asset has always first received information from this 'higher unit'. The prices of assets in financial markets therefore only ever "randomly walk", and the interlinked 'unit-dipole' markets only ever comprise an "efficient market", when this is the case, because the first moment of the randomly-walking efficient market is its receipt of 'a subjective affection along preestablished paths': e.g. from the Fed's FOMC activity and then FOMC notes to the Bloomberg terminal; from the Bloomberg terminal to the news agencies and (high-frequency) traders and other market makers; and from there throughout the rest of the so-called efficient market, the prices of all assets are then free to randomly walk.

Fascicular Model

'The radicle-system, or fascicular root, is the second figure of the [economy], to which our modernity pays willing allegiance...This time natural reality is what aborts the principle root, but the root's unity subsists, as past or as yet to come. We must ask if

reflexive, spiritual reality does not compensate for this state of things by demanding an even more comprehensive secret unity, or more extensive totality...This is to say that the fascicular system does not really break with dualism...[for] unity is consistently thwarted in the object, while a new type of unity triumphs in the subject.[8]

D&G assert that arborescent economies testify to both an 'oldest' and 'weariest kind of thought'. This, perhaps, already points us towards why the most earnest attempts to fully-effect centralized planned economies always turn so conservative so very quickly, and why they were doomed from the outset. And yet this also reveals why 'link dipoles' such as the Federal Reserve, cannot be wholly-identified with an economic assemblage whose model is *mutatis mutandis* arborescent. Elaborating the arborescent model, D&G deride those beliefs that 'the [economy] imitates the world, as art imitates nature', as if we were able to recreate 'procedures specific to it that accomplish what nature cannot or can no longer do.' Or again, the idea that '[t]he law of the [economy] is the law of reflection, the One that becomes two' –D&G warn that 'whenever we encounter this formula, even stated strategically by Mao or understood in the most "dialectical" way possible, what we have before us is the most classical and well reflected, oldest, and weariest kind of thought. Nature doesn't work that way...'[9]

However, D&G also note that even when one believes to have achieved a kind of natural multiplicity, this too may turn out to be false; that one often acquires the pretense to adventitious multiples, but which conceal an even more totalizing unity belying it. They assert that this is the case with the radicle or fascicular model of economy. As we alluded to above, actualizations of its model *par excellence* are found in the economic assemblages of capitalism –under capitalism, economic flows are fascicular.

Let us revisit our example of the Federal Reserve, but by now reversing the order of direction of its distribution of flows.

We observed above that from the Federal Reserve's sovereign determination of the supply of Treasuries to the liquidity and price of credit in money markets, from the liquidity and price of credit in money markets to the liquidity and price of credit in capital markets, and from the liquidity and price of credit in capital markets to the amount and velocity of liquidity in cash commodities markets, e.g. consumer goods markets, and so on –that this linear, pre-routed sequence testifies to operations of the arborescent model, whereby a set of the hierarchically-determined flows move from a centralized 'link-dipole' throughout the 'unit-dipoles', and in this way it is no overstatement to say that the economy is the tree, the central bank (or more generally the government) is the trunk, and the activities of the later causally radiate through and throughout the set and subset branches of the economy.

But one can easily flip this purview around by asking: "What about the contingencies of supply-and demand? Doesn't the Federal Reserve, here always have a tiger by its tail? Are not financial asset pricing models predicated on the perpetual presence of stochastic processes, efficient markets, and value-neutrality? What about the random distribution of information (e.g. a strike in the Ivory Coast causes coffee prices to surge, a bout of bad weather causes would-be home buyers to become depressed, a group of miners accidentally discover (or not) more rare earth metals, etc.) that efficiently percolates out into the market, affecting values and effecting itself into prices?

D&G say that this is precisely what is at issue in the fascicular model –namely, whether it is not the case that now 'the world has become chaos', but that an image of a linear economy nonetheless remains the image of the world.[10] For this reason, if with the fascicular model a fundamental unity characterizing the arborescent mode of distribution has now ostensibly been shattered in the object-as-economy, it proves itself a false decenterment, for it is only because a higher unity now triumphs in the economy as *subject*: this is why no trader or analyst considers it a *mere* act of metonymy to speak of "how the market *is feeling*", of "what the market *wants*", or of how much *anxiety* or *confidence* is *in* the market", and so on. When D&G observe that 'the fascicular system does not really break with dualism...[for] unity is consistently thwarted in the object, while a new type of unity triumphs in the subject', they are no doubt thinking precisely along such lines.

Indeed, deference to some higher unity (e.g. homo economicus, the invisible hand, marginal utility, or even behavioral irrationalities, etc.), both despite and because of the objectival disunity of centralized order is *the* order of capitalism. How can a system lacking any centralized command distribute its flows with any regularity, periodicity, stability, i.e. remain viable and alive? – this is the anxiety belying the fascicular model.

There are many examples testifying to this. Is it not the case that whole interbank repo market can ostensibly remain a decentered network only because it's higher unity lies in the BBA-mandated LIBOR? That the US housing market can comprise a radicle system of heterogeneous flows only because its final unity is guaranteed by the "backstop" of the GSE's –Fannie and Freddie? Or again, is it not the case that asset markets writ large are only ever free to operate in accordance with the impersonal pricing mechanisms of "the free market", e.g. through competition, supply and demand, and so on, because the Federal Reserve hierarchically controls the supply and demand of money through the noncompetitive sale and purchase of Treasuries?

In finance, whenever we avert our eyes from the abstract tropes of textbooks in order to have a closer look, we always see the same fascicular tendency of final deference, a kind of openly-concealed commitment to a higher unity, belying all pretense to multiplicity: contingencies of supply-and-demand, decentralized causality, and stochastization of all price movements– in other words all of the ostensible "frees" of the "free-market"– are only ever allowed to supervene as reality on the price series of assets because the first moment of "*free-market* capitalism" is *capitalism*, a veridically-determined, hierarchically-arranged, ongoing, pervasive deference to some higher unity that perpetually ensures the equilibrated organization of its distribution of flows.

The question of market capitalism has thus always been, as D&G put it: 'is a General necessary for n-individuals to manage to fire in unison', i.e. is some central unity –whether bound by object (State) or subject – necessary for markets to clear, to remain stable, steady, periodic, in a steady state of equilibrium?[11] The answer and open-secret of the fascicular model has always been, in short, "yes, it absolutely is!"

However, D&G wager on a third model of economy, a third model for the distribution of flows, when they assert:

'The solution *without* a General is to be found in an acentered multiplicity possessing a finite number of states with signals to indicate corresponding speeds, from a war rhizome or guerilla logic point of view, without any copying of a central order.[12]

How, in practical terms, could this model of economy be implemented, effected and affected? In short, by way of an economy of the war machine –this is the rhizomatic model of economics.

Rhizomatic Model

'The multiple *must be made*, not always by adding a higher dimension, but rather in the simplest of ways, by dint of sobriety, with the number of dimensions one always has available –always $n-1$. Write at $n-1$ dimensions. A system of this kind could be called rhizome.[13]

Markets are multiplicities. Markets are rhizomes. The rhizomatic model of flows effectuates an immanence of markets without capitalism, which D&G call dromocracy.

Our challenge is, first, to better understand the distributive modality of the rhizomatic model; second, to grasp its qualitative differences from the two aforementioned models of economy –the arborescent and fascicular models; and third, to ask what this third model, when actualized as an economy, might look like?

To begin to address these concerns, in Chapter 1 D&G enumerate six ontological traits, or principles, characterizing the distribution of rhizomatic flows. These principles are: (i) n -dimensional connection, (ii) heterogeneity, (iii) multiplicity, (iv) asignifying rupture (or nonlinearity), (v) cartography, and (vi) decalomania.

The reader of Chapter 1 may quickly realize that D&G's elaboration of these principles are hyperstylized. It's as if they're intent to decode, or unplug the elements of each principle from their familiar technical environments. This playful tone is preserved throughout the whole of *TP*, while yet with each Chapter –especially up through Chapters 9 and 12 –a descriptive sobriety sets in, and the respective disciplinary origins of several important concepts become increasingly evident to the reader. However, from the outset let us understand that each of the following principles does have an original mathematical and/or scientific conceptual corollary, which we are merely introducing and defining below, but will then proceed to develop in piecemeal fashion throughout the entirety of our essay. Providing good explanations of the concepts to these principles requires patience, space, fecundity, and above all the contextual-relevance of probative opportunity. For this reason, let us briefly examine these principles below, aware of our intention to approach satisfaction of our above-stated three-fold task as we proceed.

1 and 2. Principles of connection and heterogeneity

D&G note that 'any point of a rhizome can be connected to anything other, and must be.' The arborescent model effectuates a stable, steady, linear distribution of flows, it 'plots a point, fixes an order'; its flow originates from a single point, and from there 'proceeds by dichotomy.[14] By contrast, rhizomes, systems of rhizomes –markets as rhizomes– disseminate out in any direction, are 'connected to diverse modes of coding (biological, political, economic, etc.)', and nonlinearly disseminate out by coding, decoding, recoding, and back again.[15]

In a dromocracy, there's no one big or centralized market, as such –no fixed, enclosed, total and totalizing, Euclidean, "in itself" Market. Rather a cluster of markets are populated operators who hedge-speculate-arbitrage all at once, who do so with varieties of ontologically-different assets and their respective classes of exchange, and whose invariance requirements on the economic properties comprising their assets constantly make and remake their markets on a mobile horizon of a heterogeneous, fleeting regimes of signs, weapons, and tools (technologies). We begin to explain this up in Part III, but directly and more fully in Part IV.

D&G also note that rhizomes are metricized by *segments* and *lines*, the latter of which are both actualized by, but whose actualities in turn constantly feed back into the *attractors* around which the *quanta* and *flow* of their metricizations unfold. We will elaborate the intraphysics of these concepts in Part III, wherein we commence our examination of the mathematical and scientific heritage of the principles of connection and heterogeneity. In Part IV, such principles are conceptually expanded further, and fitted to a dromocratic model of economy, wherein we demonstrate that *nonorientable connectivity* (connection) and *intractable irregularity* (heterogeneity) have ontologically-specific *topological* and *fractal* denotations, respectively. If one wants different financial models, a different financial economics will be required. If one seeks a different way of doing financial economics, so too a different mathematics and use of mathematics will be needed. We believe, following D&G, that topology and fractal geometry provide the requisite base set of technical tools for this financial economics, and in Part IV are prepared to prefatorily make our

case.

3. Principle of multiplicity

What is a multiplicity? Definitionally, we need only observe here that Deleuze separately, and D&G together, consistently define multiplicities as becomings of objects, which, depending on textual context and relevant pedagogical task, are said to be comprised of *events* and *affects*: by the former they mean those critical spatiotemporal points in a dynamical system called phase singularities; and by the latter they mean capacities to affect and in turn be affected. Or sometimes they allude that multiplicities are assemblages of *singularities* and *properties*: by the former they again mean phase singularities, that odd, empty locus, standing at the precipice of the reshuffling of a system's morphogenetic properties (including its attractors and basins of attraction); and by the latter they denote its intensive and extensive properties. Or sometimes they say that multiplicities are comprised of *singularities* and *traits of expression*: by the former they mean attractors, whether regular or strange; and by the latter they mean both qualities and properties (viz. "traits"), however their "expression" (i.e. whether intensively and extensively).

To streamline any ambivalence in terminology by D&G, we will say that markets are comprised of *singularities* and *morphogenetic properties*. But regardless of particularities of terminological formulae –which, for us as well, should always relate to the relevance of pedagogical task– our reader should know we intend to formally denote that dynamical set of processes *that* is a multiplicity in this way: Multiplicities are always composed of (a) *singularities*, which are those contingent but absolute hollow points around which a system's morphogenetic properties actualize and become, around which their trajectories orbit, and beyond which the state of a system's properties are reshuffled; but then in turn whose very materiality exogenously feeds back into, continuously remaking the absent interiority of the system's correlative singularity; and (b) *morphogenetic properties* –which includes attractors, whether regular or strange, and all other properties, whether conceived of as affects, or traits of various expressions, whether intensive or extensive.

Any sustained discussion of singularities, attractors, basins of attraction, various point set properties, and other conceptual resources original to dynamical systems theory inevitably requires a level of explanation of those features affiliated with phase space. For without understanding phase space, there is no understanding Deleuze's concept of multiplicity. We've conveyed the importance of our analytic commitment to dynamical systems theory (DST) to the economic wagers of dromocracy, and have also articulated our intention to include in its definition the panoply of conceptual resources of nonlinear dynamics, chaos theory, complex systems theory, group theory, topology, and differential calculus, among other tools. We will eventually observe why, when combined with D&G's ontological schema, embedded in this expanded notion of DST resides a technically-astute but wholly radicalized notion of financial economics. However, to be clear, there would be zero possibility of any benevolent synchronicity among these respective analytics, and therefore no such subsequent wager without recourse to phase space. For only by way of the latter do we obtain the possibility of using the study of the virtual shape of a system to observe, analyze, and even tinker with a whole range of both actualized and unactualized, but always virtual and therefore very real, conditions for the behavior of that system. For this reason, a few words of explanation on phase space and its relation to the concept of multiplicity are not unwarranted herein.

A system whose variables are preserved but otherwise change in time will either move within a boundary of space, or else will fly off to infinity. The state of the variables of a system (i.e. its *morphogenetic properties*) are represented in phase space, wherein information about the system (for instance the velocity, position, and so on, of a ball projected in physical space; or the delta, time-decay, and so on, of a financial derivative approaching its maturity in economic space) is articulated by a coordinated set of points. As the system evolves, some points may reposition in phase space, while some may remain invariant. As the system continues to evolve and varieties of points continue to change or remain invariant, careful examination of that phase space will allow us to map their trajectories, and a virtual image of that system, unexhausted by its actuality, will emerge. For a fairly simple system, its shape may be a straight line: here, we will know it is Euclidean and linear; or some type of curved surface: here, we will know it is Euclidean and has low-level nonlinearity. A more complex system, by contrast, will make a manifold –or in Deleuze's terms, a *multiplicity*.

Chaos theory illustrates that already phase space portraits in two dimensions exhibit surprising behaviors. However, with the addition of each variable (sometimes also called 'parameter') in phase space another dimension is added, and with the addition of each dimension so too is added another 'degree of freedom'. As spaces of three, four, five, and more dimensions are added, and subsequently high-parameter system dimensionality is attained, one increasingly edges towards the concept of a complex of infinite degrees of freedom, highly nonlinear, nonorientable, irregular, suffused with high-order turbulence, and deterministically-chaotic. This is Deleuze's true conception of a *multiplicity*.

We will see that dromocracy, in essence, is founded on infinite of degrees of freedom for its operators. Its institutions are highly nonlinear, nonorientable, irregular, suffused with high-order turbulence, and deterministically-chaotic. If markets are multiplicities, and multiplicities are rhizomatic, it is crucial that we understand what this means for the ontology of markets –namely, of what it means that markets, as D&G say, 'are defined by the outside', and yet never have 'available a supplementary dimension over and above its number of lines';[16] which is to say that they are a kind of pure exteriority without overdetermination, a mechanism-independent mobile structure to the space of exchange. We will elaborate more fully the profound dynamics of multiplicities, their

relation to phase space, their nonlinearity, and its consequences for dromocracy immediately below, and then more fully in Parts III and IV.

4. Principle of asignifying rupture

Nonlinearity is the rule of cause in rhizomes. Linearity is an occasional exception, a subset of the more general class of causality that is nonlinear. For this reason, D&G caution against surreptitiously importing a conservative concept of (linear) causality into our image of economic flows, when attempting to think the rhizomatic dynamics of markets. For '[a] rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines...Every rhizome contains lines of segmentarity according to which it is stratified, territorialized, organized, signified, attributed, etc., as well as lines of deterritorialization down which it constantly flees.' It is true that '[t]here is a rupture in the rhizome whenever segmentary lines explode into a line of flight'. However, it is also the case that 'the line of flight is part of the rhizome' itself.[17]

With the principle of asignifying rupture, D&G are therefore urging their reader, let us not to underestimate the profound consequences of nonlinear causality, and with it our expectations about the material capacities of markets, or of their role in the design of a war machine economy. That markets, at their essence, as we will see in Part IV, are assemblages of operators-assets-exchange; that such assemblages comprise the hyperfungible rhizomatic institutions that ultimately effectuate nomadic distribution; and that such institutions, as we explain, are best actualized as local clusters of exotic options (CEOs), which are then globally-enfolded within a universal synthetic CDO (USCDO), and together comprise a H₂Ofall economy –this does not immediately reveal to us that any nonlinearity necessarily prevails. Rather, this is something our reader will need to be shown. D&G's emphatic association of high-level nonlinearity with a war machine economy, however, is not easily overvalued. For this reason, we will briefly establish the ontological differences between linearity and nonlinearity immediately below; and then in Part IV, will be free to develop a fuller, less-prefatory exposition of its importance.

So common today is the method of calculus in financial economics, one might occasionally forget that most differential equations have no single solution. Of course, if we *do* forget this, it's because the *solvable* equations are those which most often show up in our textbooks –by which we mean linear equations, and those rare classes of nonlinear equations prostrating themselves under compulsions of techniques for their solution. This is rendered both ironic and more than ironic by the fact that orderly, solvable, linear systems are anomalies, while nonlinear systems are the rule. Why does this matter? To begin with, our image of a linear world is interwoven with presuppositions involving proportionality and additivity, under which the principle of superposition always holds. Because linear relationships are proportional and additive, they can always be plotted along a straight (Euclidean) line on graph. For this same reason, a deep, conservative constancy marks the volatility of a linear system. Its equations, linear equations, permit the disassemblance and reassemblance of their parts with no material effect: one can subtract and add them up, but their numeric values always will retain their Euclidean identity, for while the principle of additivity prevails, no true change is possible.

Nonlinear equations, by contrast, are either not reducible to a single stable solution, or admit no solution whatsoever. Such equations articulate relationships that are strictly disproportional, which means that nonlinear phenomena are neither additive nor isolable, their parameter behavior is nonconstant, even their volatility is nonconstant.[18] Moreover, operating on nonlinearities can qualitatively alter the basic character of their rules of combination –indeed the defining feature marking a complex nonlinear system involves the ever-present possibility that some small, imperceptible, often ostensibly-insignificant change in one parameter might push an otherwise conventional, even apparently stable system across a singularity, ushering in a qualitatively new and very different behavior.[19]

What profound material capacities do the denizens of a dromocracy horizontally wield by virtue of their operation on and with high-parameter nonlinearities? Already in Part III we will see that nonlinearity poses a radical challenge to the very principle of classical representation, on which our panoply conceptions of economic value, i.e. cardinal value, which comprise all prior theories of cardinal of value, are implicitly predicated. In opposition to cardinal value D&G outline an ordinal concept of value. This matters for Part IV, wherein we will deepen the (ordinal) plot of our story –moving from Part III's expository discussion of the relation between the ordinal concept of value and quintessential abstract formulation of an ordinal process of becoming that is *the Cantor set*, to now in Part IV, its use in constructing a *Koch curve*: and from this vantage, our reader will grasp that the concrete deployment of the Koch curve is the modus operandi of the proliferation of *clusters of exotic option* (CEOs) –which realizes an infinite growth of economic length in a finite volume of space (That the ethic of infinite growth of volume is to be replaced with an ethic of infinite growth of length in a dromocracy will become clear at this time as well).

Admittedly, we have highlighted only several of the many profound material capacities of nonlinear causality for the financial economics of dromocracy in Part IV: for example, that in a dromocracy nonadditivity unseats superposition; that the denizens of a dromocracy act as operators who themselves act as a critical stimuli, the control parameter, which "switches on" nonlinear phenomena, so to speak, thus disposing the system of multiple solutions whose availability remained yet unactualized but virtual, and from which its denizens are free to choose; that dromocracy operates by way of *involution*, which already problematizes the arborescent ethic of strict natural selection –and that even when the latter is operative, heterogeneities of a parallel evolution and "unnatural" symbioses are far more general phenomena than any tree-like descent, genetic overdetermination, or pseudo-

Nietzschean fantasies of uber-fitness, the latter of which always seem to trickle into and then leak out again of our anthropomorphized biologism, and on into our models of economy. We believe these are merely a few of its possible trajectories. At any rate, nonlinearity is the concept we should understand as being convoked by D&G when itemizing the principle of asignifying rupture.

5 and 6. Principle of cartography and decalcomania

D&G's commitment to the principles of cartography and decalcomania should not be interpreted in a spirit of metaphor, nor as a kind of poetics, nor as synecdoche. D&G literally mean cartography and decalcomania. With these two principles they intend to denote the activity of map-makings of phase space, and then placing its variables into a state of perpetual variation.[20] We introduce this notion below, and then more fully take it up in Part IV.

We observed above that analytic techniques applied by DST to phase space lend us a powerful method for transmitting numbers into images, of abstracting the singular and virtual from the ordinary and inessential, of extracting information from becomings of trajectories, and constructing n-dimensional maps in order to tinker with the unactualized possibilities always already virtual in a multiplicity.[21] It is thus never a question of tracing and reproducing, but rather of mapping and decalcomania. D&G assert that '[a]ll of tree logic is a logic of tracing and reproduction.'[22] They therefore oppose to the overcoded activities of *tracing* the decoding activities of *mapping*; and for conservative operations of *reproduction* they wish to substitute radical operations of *following* –of submitting to an event, of becoming worthy of the singularities in matter; of following matter, as an operator or set of operators follow the contingencies of the real, as an artisan follows the plane of wood she planes; of always examining and thinking, following and tinkering, following and tinkering, following, thinking, following and tinkering: perpetual modification with the map, putting into constant variation its decals. The map may be in incessant flux, it may testify to chaos, to turbulence, or the special condition near total chaos we will come to know as *far-from-equilibrium*. But we will show in Part IV that in fact this is the very condition of possibility of economic health, the very condition for a rhizomatic distribution of flows, the very condition for dromocracy.

The denizen of a dromocracy is an operator. The operator is an artisan. And as such she always seeks to operate on and with and by matter, experimenting with its divergent evolutionary capacities, of loving, respecting, and coaxing, but always demanding more from matter, i.e. of more than what matter even knows itself to be capable. The operators of a dromocracy are cartographers, decalcomaniacs –and thus, as we will see in Part IV, are hedgers-speculators-arbitraders all at once– always following a line of flight, submitting to singularities, perpetually reaffirming their self-made becomings of fate with affirmation and joy.

Let us move to the task of Part III.

[1] For example: 'Rather than operating by blow-by-blow violence, or constituting a violence "once and for all," the war machine... institutes an entire economy of violence, in other words, a way of making violence durable, even unlimited.' Ibid 396 Moreover: 'The State has no war machine of its own; it can only appropriate one in the form of a military institution [read: *capitalism*], one that will continually cause it problems.' Ibid 355

[2] Ibid pg. 5, 16

[3] This term denotes something very specific for D&G, which we address when we concern ourselves in Part III with Chapter 9.

[4] Pg. 16

[5] Pg. 16

[6] "The Hand of the Lever", Nicholas Lehman, *The New Yorker*, July 21st 2014 pg. 47

[7] Ibid pg. 45

[8] Ibid pg. 5-6

[9] Ibid pg. 5

[10] Ibid pg. 6

[11] Ibid pg. 17

[12] Ibid pg. 17 {my emphasis}

[13] Ibid pg. 6

[14] Ibid pg. 7

[15] Ibid pg. 7

[16] Ibid pg. 9

[17] Ibid pg. 9

[18] In Part IV we will later to the significance for financial economics that the signature of nonlinearity is the volatility of volatility.

[19] Nicolis nicely captures the basic ontological difference between linear and nonlinear systems, observing, '[I]n a linear system the ultimate effect of the combined action of two different causes is merely the superposition of the effects of each cause taken individually. But in a nonlinear system adding two elementary actions to one another can induce dramatic effects reflecting the onset of cooperativity between the constituent elements' –that is to say, a cooperativity and set of subsequent material capacities that were previously lacking. 'This can give rise to unexpected structures and events whose properties can be quite different from those of the underlying, elementary laws [i.e. governing linear systems], in the form of abrupt transitions, a multiplicity of states, pattern formation, or an irregular, markedly unpredictable evolution in spacetime, referred to as deterministic chaos.' G. Nicolis, *Introduction to Nonlinear Science*, Cambridge University Press, 1995 pg. 1

[20] ('The search for laws consists of extracting constants even if those constants are only relation between variables (equations). An invariable form for variables, a variable matter of the invariant...[By contrast is] nomad science [wherein] the relevant distinction is material-forces rather than matter-form. Here it is not exactly a question of extracting constants from variables but of placing the variables themselves into a state of continuous variation.') TP pg. 369

[21] Gleick describes 'phase space...[as] one of the most powerful inventions of modern science...In phase space the complete state of knowledge about a dynamical system at a single instant in time collapses to a point. That point *is* the dynamical system – at that instant. At the next instant, though, the system will have changed, ever so slightly, and so the point moves. The history of the system time can be charted by the moving point, [mapping] its orbit through phase with the passage of time.' Gleick pg. 134

[22]

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